



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/583,776

06/21/2006

Koji Katano

128472

5903

25944 7590 08/03/2011

OLIFF & BERRIDGE, PLC
P.O. BOX 320850
ALEXANDRIA, VA 22320-4850

EXAMINER

WALKER, KEITH D

ART UNIT

PAPER NUMBER

1726

NOTIFICATION DATE

DELIVERY MODE

08/03/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com
jarmstrong@oliff.com

Office Action Summary	Application No.	Applicant(s)	
	10/583,776	KATANO, KOJI	
	Examiner	Art Unit	
	KEITH WALKER	1726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/12/11</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/12/11 has been entered.

Claims 1, 2 & 4-8 are pending examination as discussed below.

Information Disclosure Statement

The information disclosure statement filed on 7/12/11 has been placed in the application file and the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1726

1. Claims 1, 2 & 4-8 are rejected under 35 U.S.C. 103(a) as obvious over WO 02/089244 (Ibrahim) in view of US 2004/0038114 (Wariishi).

Ibrahim teaches a fuel cell system with first supply passage (21) and second supply passage (22) that communicate with each other in the fuel cell stack and supply fuel to the anode (Abstract, Fig. 1). The first supply passage is connected to a first manifold (12) and the second supply passage is connected to a second manifold (13). An exhaust passage is connected to the second supply passage to discharge exhaust gas through the valve unit in the exhaust passage (Fig. 1). A controlling unit controls the flow of gas through each of the first and second passages when the exhaust passage is closed (Fig. 1; [0005, 0006, 0021, 0022]). The first and second passages supply fuel in opposite directions within the anode ([0007]). An exhaust passage connects to the second supply (22) passage through the T-fitting (23). This connection portion (23) is an extreme downstream portion of the fuel gas from the first supply side and is the portion where the exhaust passage connects to the second supply passage and therefore coincides with the extreme downstream portion of the fuel gas when the opening and closing unit (24) is open. The controller controls the flow of fuel gas intermittently and shifts the time period ([0006]). The exhaust passage is connected to the second passage between the fuel cell and the valve (Fig. 1).

Ibrahim is silent to the controlling unit controlling the supply of fuel to the anode in simultaneous flow from both the first and second supply passage.

Wariishi teaches using an anode flow controlling unit to change the fuel flow to the anode. The switching method taught allows the fuel to continuously flow from the

Art Unit: 1726

multiple inlets so the flow of fuel is not ever stopped, thus creating a simultaneous flow. Wariishi teaches that utilizing a solenoid operated control valve - like the one taught by Ibrahim - stops the flow of fuel and therefore stable electric energy output becomes difficult ([0010, 0015]). To correct this unstable condition, an actuator is used that allows for a smooth transition between flow directions, which allows the flow of gas to be continuous and so stable energy is produced from the fuel cell ([0023, 0024, 0065]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the fuel control of Ibrahim with the controlling feature of Wariishi to enable a simultaneous flow from both the first supply and the second supply and create a stable output of electrical energy from the fuel cell. Regarding the flow amount calculating unit and basing the flow on the state of the fuel cell stack, since this includes turning on the fuel cell stack from an off position, the controller turns on the flow of fuel when the fuel cell is required to power a load (Figs. 6-9; Abstract, [0006, 0023, 0028-0030]). Furthermore, controllers that calculate the required flow amount and optimize the flow of reactant with the power requirements of the fuel cell are well known in the art and using such methods would be obvious to reduce the waste of reactants and possible damage to the fuel cell. Combining prior art elements according to known methods to yield predictable results and using known techniques to improve similar devices in the same way are considered obvious to one of ordinary skill in the art (KSR, MPEP 2141 (III)).

Response to Arguments

Applicant's arguments filed 5/31/11 regarding the rejection of claims 1, 2 & 4-8 over the prior art of Ibrahim in view of Wariishi have been fully considered but they are not persuasive.

Applicant argues neither Ibrahim nor Wariishi teaches *an extreme downstream portion of the fuel gas coinciding with a position where the exhaust passage is connected to the second supply passage when the opening and closing unit is open*. However, Ibrahim teaches an exhaust passage that connects to the second supply (22) passage through the T-fitting (23). This connection portion (23) is an extreme downstream portion of the fuel gas from the first supply side and is the portion where the exhaust passage connects to the second supply passage and therefore coincides with the extreme downstream portion of the fuel gas when the opening and closing unit (24) is open.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH WALKER whose telephone number is (571)272-3458. The examiner can normally be reached on Mon. - Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1726

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Keith Walker/
Primary Examiner, Art Unit 1726